

The Role of Local Ecological Knowledge in Effecting Political Decisions: Lessons from McFadden Creek, Salt Spring Island

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Abstract

In the Salish Sea bioregion, the shellfish aquaculture industry, mostly Pacific oyster (*Crassostrea gigas*) and Manila clam (*Venerupis japonica*), is big business and continued expansion of the industry is a stated objective of the B.C. Ministry of Agriculture, Fisheries and Food. Balancing regional economic growth with conservation and protection of the environment often results in conflicts, particularly when aquaculture is being proposed within the Islands Trust Area.

This paper describes the circumstances of a shellfish aquaculture expansion application on Salt Spring Island, its potential impacts on the large colony of coastal great blue heron (*Ardea herodias* ssp. *fannini*) occupying a protected heronry nearby, and the events that led to a rejection of the application by the Salt Spring Island Local Trust Committee. There are many lessons to be learned from this process that have broader application. The role of the local community and citizen science in helping decision-makers to make informed decisions is discussed. Critical flaws in the planning process are discussed and the case for ecosystem-based decision-making is presented as a means of avoiding conflict in future.

Introduction

The ecological uniqueness and fragility of the islands in the Salish Sea were formally recognized in 1974 when the Province of British Columbia enacted the *Islands Trust Act* (1996). The *Act* states that the Object of the Islands Trust¹ is to “preserve and protect the Trust Area and its unique amenities and environment for the benefit of the residents of the Trust Area and the Province generally” (Islands Trust Act 1990). The Trust Area includes the islands and waters between eastern Vancouver Island and the mainland coast of BC, totalling 5200 km² (Figure 1). Twelve Local Trust Committees and the Bowen Island Municipality are responsible for land use planning decisions in the Islands Trust Area. Each local trust committee has jurisdiction over a large populated island, plus any smaller adjacent islands and the surrounding waters

All trustees sit on the Islands Trust Council, a body that meets quarterly to make decisions about overall policy, staffing, and budget. An executive committee elected by Trust Council oversees operations and maintains relations with other levels of government. The Islands Trust Fund² is a separate non-regulatory body within the Islands Trust that acquires and manages land for conservation, holds conservation covenants, and accepts donations to help preserve and protect the ecological values of the Trust Area.

Local Planning Process

The local planning process in British Columbia is governed by the *Local Government Act* (1996), which sets out the procedures for Islands Trust to plan and regulate land use activities in the Islands Trust Area. Official Community Plans (OCP) set out the broad goals and policies that help guide the preservation and development of an island. Official Community Plans are developed through a lengthy public consultation process with extensive community involvement. Draft documents are referred to First Nations and other government agencies for comment to ensure that other jurisdictions are not contradicted. Complementing an OCP is a Land Use By-Law, which contains all the regulations that govern the use and density of the land, as well as other regulations such as setbacks, height restrictions, parking requirements, signage restrictions, drainage restrictions and subdivision servicing. Once adopted the OCP and its Land-use Bylaw are administered by each Island's Local Trust Committee.

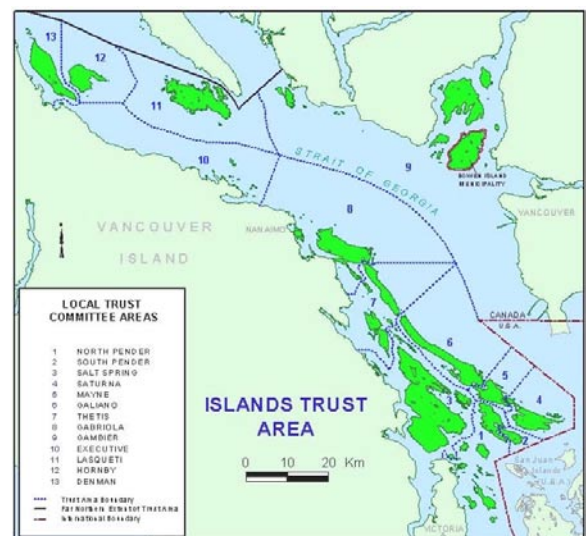


Figure 1. Islands Trust Area. (Source: Islands Trust)

All Local Trust Committee bylaws (Official Community Plans and Land-use Bylaw) can be amended from time-to-time. The Local Trust Committee can elect to make changes for the good of the community, or in response to a community concern. A landowner can make an application to amend a bylaw to permit a change of use or density.

Applications to amend a by-law are submitted by landowners. Applications are reviewed by planning staff, referred to advisory groups established by the Local Trust Committee, and referred to other Agencies for comment and recommendations. Planning staff then evaluates the results from this review and referral process and prepares a report for the Local Trust Committee. If the Local Trust Committee believes there is merit in the application, a by-law amendment is drafted, and the application proceeds after first reading of the by-law, to public hearing.

A public hearing is the legislated forum that gives members of the public the legal standing to speak or give written submissions to the local trust committee on a bylaw being heard. Section 890 of the *Local Government Act* specifies the rules for when a public hearing must be held, how it is advertised, and what happens afterward. Minutes are not taken, but a written report of the public hearing summarizing the representations made at the hearing is prepared and maintained as a public record.

When a public hearing is closed, the local trust committee may not consider new information or material or discuss the matter with the public until they have made a decision on the bylaw. The local trust committee members may, after the public hearing, receive reports from their own staff, consultants and legal counsel respecting bylaw modifications in response to comments received at the public hearing.

The application is brought to completion with the Local Trust Committee either approves the application and recommends that the by-law be given second and third reading, tables the by-law until additional information is considered, or rejects it. All bylaws of a local trust committee must be submitted to the Islands Trust Executive Committee for approval before final adoption. If the executive committee returns the bylaw, or refuses to approve a bylaw, a local trust committee can request that the bylaw be submitted to Trust Council for approval. Reasons for refusing approval of a bylaw are typically related to failure to have regard for the Object of the Islands Trust.

McFadden Creek Heronry

The McFadden Creek Heronry near the northeastern tip of Salt Spring Island (Figure 2), is owned by the Wildbird Trust of British Columbia. In late 2002 the mortgage was paid off, and title transfer to the Islands Trust Fund will be completed in 2003. The Waterbird Watch Collective, a local group with members mostly on Salt Spring Island, provides day-to-day management and monitoring. To avoid disturbing the herons, no humans are allowed into the heronry during the breeding season, which is defined as the period from February to August. Because it is documented that the McFadden Creek herons are very susceptible to human disturbance during the nesting season, the Islands Trust Fund has worked with Transport Canada to have the McFadden Creek Heronry on Salt Spring Island shown on aviation charts as a “no fly-over zone”.

The heronry was acquired in 1998 to protect the 5.1-hectare nesting area for a large colony of coastal great blue herons (*Ardea herodias* ssp. *fannini*). The coastal great blue heron numbers about 2,400 breeding pairs in British Columbia but the Canadian Wildlife Service has determined that the populations has been declining at a rate of 9.4% annually because of eagle predation, habitat loss and human disturbance. The sub-species is listed as “vulnerable” by COSEWIC, and is blue-listed by the Province of B.C.

The McFadden Creek Heronry was first colonised in 1990 and subsequently expanded very rapidly to its current size (Table 1). At the time of its acquisition, the heronry was one of the three largest in B.C. and supports about 5% of the Canadian population. For this reason, it was designated as the first Canadian Important Bird Area (IBA) in British Columbia in 1998.

The number of nests continued to grow until 2001, when eagle predation was suspected as the trigger event causing abandonment following nesting. While abandonment due to eagle predation occurred again in 2002, a partial nest count on November 5, 2002 indicated that 29 nests were built in nine new trees, in addition to the 85 nests found in 32 previously occupied trees (Dunster 2002). Local naturalists are closely monitoring the herons during the spring of 2003 and have reported that herons are flying in and out of the heronry, but the nesting season is long, and success will not be known for some months (Raginsky 2003).

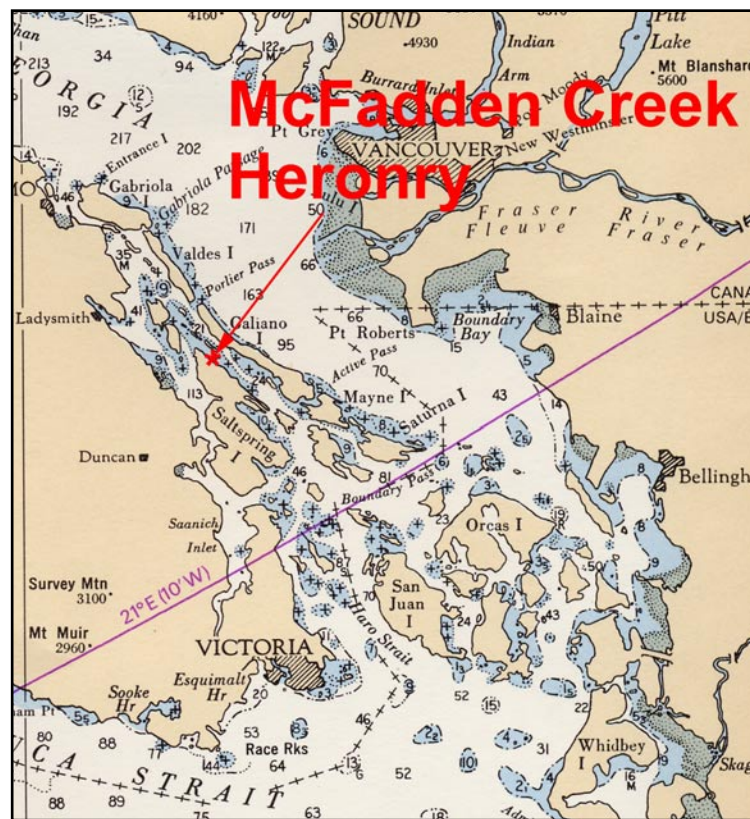


Figure 2. Location of McFadden Creek Heronry on Salt Spring Island. (Source: Adapted from Canadian Hydrographic Service Chart L/C 3000).

Table 1. Nest and Nesting Tree Data at McFadden Creek Heronry

| Year | # Nests | Total Nest Trees |
|------|---------------------|--------------------|
| 1996 | 118 | 39 |
| 1997 | 118 | 39 |
| 1998 | 122 | 41 |
| 1999 | 131 | 51 |
| 2000 | 138 | 57 |
| 2001 | no data | no data |
| 2002 | 114 (partial count) | 41 (partial count) |

The causes of eagle predation are of serious concern because nearby tree cutting has opened a clear line of sight from one nearby eagle nest to the heronry. Experiences in Washington State indicate that tree cutting and land clearing around a heronry is directly related to abandonment of the heronry (Eissinger 1996a; 1996b). In 1999, mass abandonment took place at eight heronries in Puget Sound, totalling 700 breeding pairs, and eight heronries on southern Vancouver Island and the Gulf Islands, totalling 240 breeding pairs. In most cases, tree cutting of surrounding forest buffers was noted. Because of the declining population trend in coastal great blue heron, the abandonment of any size of heronry and subsequent loss of a new generation of cohorts is a catastrophic event, both locally and globally.

The herons have clearly not given up on nesting at the McFadden Creek Heronry but their long-term survival is going to depend on continued protection of the heronry. Linked to this is the need for the community of Salt Spring Island and the Islands Trust, as the local government, to recognise that the estuary, intertidal zone, eelgrass meadows and shoreline are feeding grounds for the herons and must also be formally protected from other uses.

And on land, heron habitat is considerably more than a few hectares of nesting sites, and until the entire island is considered the “heronry” and is planned and protected for the needs of herons, further losses may be inevitable. A small

10-metre “no disturbance” buffer around McFadden Creek was adopted in Salt Spring Island’s Official Community Plan in 1998, but this regulation has not stopped tree cutting and other disturbances on surrounding lands beyond the 10-metre buffer.

McFadden Creek Estuary

In 1999, B.C. Land and Water, the provincial agency responsible for leasing public lands and waters began the process to expand an existing shellfish operation at McFadden Creek Estuary. Local planners supported the application for various reasons, some erroneous. A by-law³ was drafted and first reading took place on February 8, 2002. The public hearing date was set for May 29, 2002. In the months preceding the hearing, members of the Waterbird Watch Collective recruited experts, prepared reports, encouraged citizens to write letters, gathered names on a petition, wrote letters to the paper, and made presentations to the Islands Trust Council. The goal was to provide the Local Trust Committee with the technical information and scientific reasons for turning down the application—information that was not collected by staff during the referral process.

In the two years preceding the May 2002 public hearing, planners had assumed that the critical public and environmental issue was ensuring that the rezoning would have little impact on the great blue heron. Advice was sought from experts at government agencies, but it became apparent during the Public Hearing that the wrong questions were asked (Sprague 2002). By taking a single-species planning approach, the needs of other parts of the ecosystem were ignored. Local ecological knowledge presented by members of the community at the public hearing provided the politicians with a fuller picture of how the ecosystem functions, the inter-connectedness of species, the interface between terrestrial and marine ecosystems, and the need for informed ecosystem-based decision-making. Most importantly, member of the community stood up to describe their own personal relationship with the McFadden Creek area, and the impacts on their lives that would occur if the application was approved.

On May 30, 2002, the Salt Spring Island Local Trust Committee voted to “proceed no further on Bylaw No. 375” and turned down the application to re-zone the intertidal area and expand the shellfish aquaculture operation. The decision to reject the rezoning application affirmed the wisdom of the community, and set a precedent for future scenarios in the Islands Trust Area.

Some Lessons for Decision-makers

Oftentimes the knowledge of local people is neglected or ignored by bureaucrats when seeking “expert” advice. Conversely, the depth of site-specific knowledge amongst local people is often staggering, and comes from inhabiting a place for many years and becoming active observers and participants in the functions and processes of the ecosystem. In these years of dwindling field staff and budgets, the need to acknowledge and accept the work of citizen science is imperative. Planners and scientists have much to gain if they listen and learn from local people.

Local governments are responsible for planning communities in a sustainable way. Yet, few local governments have biologists, ecologists, or environmental planners with biology backgrounds on staff. In the case of Bylaw 375, some of the early errors could have been easily corrected if the Islands Trust had a staff ecologist available to coordinate environmental planning and help the planners ask the “right” questions.

One of the most serious deficiencies in how planning is undertaken in B.C. is the separation of terrestrial ecosystems from marine ecosystems. Such separation has been to the detriment of those species, habitats and communities occupying the ecotone between terrestrial and marine ecosystems. While many species utilise both terrestrial and marine ecosystems for various parts of their life cycles, planners have a very poor understanding of the ecological relationships of these species. Consideration of the total ecosystem should become a priority for community planning and decision-making in the coming years.

Similarly, a fully functioning riparian ecosystem such as McFadden Creek includes its estuary. Estuaries are considered to be sensitive habitat by Canada Department of Fisheries and Oceans (DFO), and freshwater inputs into eelgrass beds are a critical part of eelgrass ecosystem dynamics and also important for some species of fish. In Bylaw 375, it was proposed to move the shellfish aquaculture activities into the McFadden Creek Estuary, which in itself should have led to rejection by DFO. No environmental impact studies were undertaken to support this proposal, and the failure of the planners to recognize the ecological importance of the estuary was noted by the community at the public hearing. Again, with a staff ecologist, this serious deficiency could have been spotted before it became an issue.

Interestingly, when an application for land-based activities comes before a Local Trust Committee, the LTC typically asks the proponent to provide an environmental study of the species and ecosystems that may potentially be at risk because of the proposed change in land use. It is then possible to assess the direct, indirect and cumulative impacts that the development will have on the environment, and determine whether mitigation will offset any damage, or whether the application should be rejected for failing to meet the Islands Trust Object. In the case of Bylaw 375, no such environmental studies were required, and the proponent did not voluntarily undertake any studies. This deficiency was noted by the community at the Public Hearing and must be dealt by Trust Council. Developing a policy and procedures for planning in marine environments throughout the entire Trust Area will go far to avoid similar scenarios in the future.

The two shellfish species that are currently raised in the shellfish license area at McFadden Creek are both exotic species, not native to the Salish Sea. The Japanese oyster (*Crassostrea gigas*) was introduced around 1905, and cannot naturally restock the oyster beds where it is artificially raised. Seed oysters are raised and imported from Japan and elsewhere to create the next harvest—definitely not a sustainable practice. The Japanese oyster has displaced our native oyster, the Olympia oyster (*Ostrea lurida*), which last autumn was placed on the COSEWIC species at-risk list as a species of Special Concern. The Japanese little-neck (Manila) clam (*Venerupis japonica*) was accidentally introduced to B.C. with Japanese seed oysters around 1936 and has since become a commercially raised and harvested shellfish. Native oysters have been found in the intertidal areas at McFadden Creek and a very strong case should be made to eliminate the current practice of industrial farming of non-native species and encourage the sustainable culture of the native species.

Policy 3.1.1 of the Islands Trust Policy Statement states that “protection must be given to the Trust Area’s natural processes, habitats and species, including those of ...estuaries, tidal flats...eelgrass beds...” The area within the proposed Bylaw 375 re-zoning application and the areas around the proposed re-zoning application area provide habitat for many species, some of which are listed as species at-risk provincially and/or federally. When no comprehensive independent environmental studies are undertaken, the question of uncertainty is raised. The best lesson for decision-makers in these circumstances is to follow the precautionary principle and turn down the application.

End notes:

¹ For detailed information about the Islands Trust, including the Policy Statement, refer to www.islandstrust.bc.ca

² For detailed information about the Islands Trust Fund, refer to www.islandstrustfund.bc.ca

³ By-law No. 375, “Salt Spring Island Land Use Bylaw, 1999, Amendment No. 2, 2002.” Published online at <http://www.islandstrust.bc.ca/islandgovernments/saltspring/bylaws/proposed/ssibylamendlu0375.pdf>

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